AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A device for monitoring the integrity of a hybrid system comprising an inertial unit INS [[(1)]], a GNSS satellite positioning receiver [[(2)]] operating on the basis of a constellation of N visible satellites, and a Kalman hybridization filter [[(3)]] having a state vector corresponding to the errors of the hybrid system, in particular the bias and residual drift errors of the inertial unit INS (1), observing the deviations between the positioning and speed points supplied, in the form of geographic coordinates, by the inertial unit INS [[(1)]] and by the GNSS receiver [[(2)]], having an evolution matrix F modeling the trend of the errors of the hybrid system, an observation matrix H modeling the relationships between the state vector and the deviations observed between the positions and speeds delivered by the inertial unit INS [[(1)]] and the GNSS receiver [[(2)]], and a gain K minimizing the covariance of the error made on the a posteriori estimation of the state vector of the Kalman filter and in particular of the residual errors of the inertial unit INS [[(1)]], and delivering an a posteriori estimate of the errors of the hybrid system used to reset the inertial unit INS [[(1)]], ~~characterized in that~~ wherein the GNSS receiver [[(2)]] delivers, in addition to a position point obtained from the N visible satellites that it has in view, position points $P_{(N-1)/i}$, $i \in [1,..N]$ etc., resolved with N-1 visible satellites deducted from the constellation of the N visible satellites by depriving it each time of a different satellite and in that it comprises a satellite problem-detector circuit [[(4)]] comprising:

a bank of N predictor/estimator filters (40_i) of the error induced by the satellite that was removed on resolving a position point with N-1 satellites, having the gain K and the evolution matrix F of the Kalman hybridization filter [[(3)]], each filter observing the deviation between the position point, in the form of geographic coordinates, delivered by the GNSS receiver [[(2)]] by observing the N visible satellites and one of the position points $P_{(N-1)/i}$, also in the form of geographic coordinates, delivered by the GNSS receiver [[(2)]] by observing N-1 visible satellites and test circuits (41_i) comparing the states of the predictor/estimator filters (40_i) with their variances and detecting a satellite failure when the test is positive, the deviation found being greater than a detection threshold.

2. (currently amended): The device as claimed in claim 1, ~~characterized in that~~ wherein the detection thresholds are statistical thresholds that take account of the covariance associated with the type of positioning error concerned.

3. (currently amended): The device as claimed in claim 1, ~~characterized in that~~ wherein the detection thresholds are statistical thresholds that take account of the covariance associated with the type of positioning error concerned and that are a function of the acceptable false alarm ratio for the test.

4. (currently amended): The device as claimed in claim 1, ~~characterized in that it comprises~~ comprising: a reset inhibition circuit [[(5)]] inserted between the output of the Kalman hybridization filter [[(3)]] and a reset input of the inertial unit INS [[(1)]], and activated by the satellite problem-detector circuit [[(4)]].

5. (currently amended): The device as claimed in claim 1, ~~characterized in that~~ wherein the predictor/estimator filters (40_i) of the satellite problem-detector circuit [[(4)]] all have the same observation matrix.

6. (currently amended): The device as claimed in claim 1, ~~characterized in that~~ wherein the GNSS receiver [[(2)]] delivers position points $P_{(N-1)/i}$ $i \in [1,..N]$ and $P_{(N-2)/i,j}$ ($1 \leq i < j \leq N$), in the form of geographic coordinates, resolved from N-1 and N-2 satellites deducted from the N visible satellites by each time removing a different visible satellite, the i^{th} for the point $P_{(N-1)/i}$, and by also removing another satellite from the remaining N-1, the j^{th} for the point $P_{(N-2)/i,j}$, and in that it comprises a malfunctioning-satellite identification circuit [[(6)]] comprising:

a bank of Nx(N-1)/2 predictor/estimator filters ($61_{i,j}$) estimating the error induced jointly by two satellites out of the N observable satellites having the gain K and the evolution matrix F of the Kalman hybridization filter [[(3)]], each filter observing the deviation between a position point ($P_{(N-1)/i}$), in the form of geographic coordinates, delivered by the GNSS receiver [[(2)]] from a specific constellation of N-1 visible satellites and one of the position points $P_{(N-2)/i,j}$ delivered by the GNSS receiver [[(2)]] from a constellation of (N-2) visible satellites deducted from the specific constellation of (N-1) visible satellites deprived of one of its satellites, the j^{th}, the predictor/estimator filters being able to be grouped in families of N-2 elements according to the specific constellation of N-1 satellites taken into account, a bank of test circuits ($62_{i,j}$)

comparing the states of the predictor/estimator filters ($61_{i,j}$) with their variances and detecting an anomaly if the deviation found is greater than a detection threshold, and a circuit for processing the results of the tests [[(63)]] centralizing the tests raised identifying, if anomalies are detected, a faulty satellite as being the satellite excluded from a position point resolved with N-1 satellites for which the family of predictor/estimator filters is the only one not to have any of its elements detecting an anomaly.

7. (currently amended): The device as claimed in claim 6, ~~characterized in that~~ wherein the detection thresholds of the test circuits ($62_{i,j}$) of the circuit [[(6)]] identifying malfunctioning satellites are statistical thresholds taking account of the covariance associated with the type of positioning error concerned.

8. (currently amended): The device as claimed in claim 7, ~~characterized in that~~ wherein the detection thresholds of the test circuits ($62_{i,j}$) of the circuit [[(6)]] identifying malfunctioning satellites are statistical thresholds that take account of the covariance associated with the type of positioning error concerned and that are a function of the acceptable false alarm ratio for the test.

9. (currently amended): The device as claimed in claim 6, ~~characterized in that~~ wherein the predictor/estimator filters ($61_{i,j}$) of the malfunctioning-satellite identification circuit [[(6)]] all have the same observation matrix.

10. (currently amended): The device as claimed in claim 6, ~~characterized in that~~ wherein the predictor/estimator filters (40_i, $61_{i,j}$) of the satellite problem-detector circuit [[(4)]] and of the malfunctioning-satellite identification circuit [[(6)]] all have the same observation matrix.